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OXEN AND BUFFALOES.

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THE CATTLE AND BUFFALOES OF BAHRAICH AND
KHERI :

*Note by SAYYID MOHAMMAD HADI, M.R.A.C., Assistant Director, Land Records
and Agriculture, North-Western Provinces and Oudh.*

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E. C. BUCK,

Secretary to the Government of India.

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THE CATTLE AND BUFFALOES OF BAHRAICH AND KHERI :

*Note by SAYYID MOHAMMAD HADI, M. R. A. C., Assistant Director, Land
Records and Agriculture, North-West Provinces and Oudh.*

In February last I had the opportunity of making a tour in the district of Bahraich with a view to making enquiries into the breeds of cattle found in that district. The information collected has been classified in the following note under the heads prescribed in circular No. 45 M. issued by the Civil Veterinary Department.

1.—*Suitability of the Bahraich District for cattle breeding.*

In the district of Bahraich, there seems to be little doubt regarding the suitability for cattle breeding of Tahsils Nānpārā and Kaisarganj and the Forest Reserves, where pastures are tolerably good, though with reference to the number of cattle in the district, as will be pointed out in paragraph (3) below, there is, on the whole, an insufficiency of grazing grounds. However, where there are pastures, they are extensive and have plenty of shade and water supply in them. There is no reason why in the event of good bulls of superior breeds, e.g., those found in Kheri and Mewat, being imported and located in those parts of the district where good pastures are available, the local breeds should not improve. Cattle in poor condition are, no doubt, met with everywhere in the district owing not to unsuitability of the district for cattle breeding, but to generally careless management of herds, imperfect attention on the part of breeders, in selection and treatment of breeding cows and bulls, poor quality of food given to the cattle, and indifference to the subject of growing fodder crops.

Places
suitable for
cattle-breed-
ing.

2.—*Breeds of cattle.*

Nānpārā enjoys some reputation for its cattle especially among the inhabitants of the southern and eastern districts of Oudh. Enquiry has, however, shown that all the cattle known in some of those districts as belonging to the Nānpārā breed are not really of that breed. The breeders and cattle dealers in the tahsils of Nānpārā import young calves from the other side of the Gogra, *vis.*, Khairigarh and Dhaurahra, and keep them with their herds or rear them for sale, till they are well grown up, when they are sold to purchasers from other districts. Many of such

Breeds of
cattle.

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The Cattle of Bahraich.

	<p>bullocks are erroneously classed as cattle of the <i>Nānpārā</i> breed. There are, however, two indigenous breeds worthy of mention which are common in the tahsil of <i>Nānpārā</i>, and they are :—</p> <ol style="list-style-type: none"> (1) The <i>Risā</i> breed. (2) The <i>Nānpārā</i> breed.
Risā breed.	<p><i>Risā</i> is really the name of a <i>nālā</i> running from north to south in a portion of the tahsil of <i>Nānpārā</i> and passing through the village <i>Risā</i>. Grant. It is a popular belief that the quality of the <i>Risā</i> cattle is due to the effect of water which they drink out of the <i>nālā</i>. The breed found along the side of the <i>nālā</i> is known by the name of <i>Risā</i> and is scattered all over the Pargana of Charda and part of <i>Nānpārā</i>, Bhinga, and Bahraich. I came across some of its best specimens in Bhopatpur and <i>Risā</i> Grant.</p>
Nānpārā breed.	<p>The <i>Nānpārā</i> breed is found in the neighbourhood of <i>Nānpārā</i> and all over the north and north-west of the <i>Nānpārā</i> Tahsil.</p> <p>The <i>Risā</i> breed differs from the <i>Nānpārā</i> chiefly in being generally of smaller size, having much slighter sheath, smaller ear, finer hair and bones, and being more "leggy," quick, active, fast-going, hot-tempered, and enduring. Generally speaking, the horns in both the breeds are elegant (seldom mis-shaped), thick at the root and tapering in a fine point. But in the <i>Nānpārā</i> breed, though the size is not always much larger, the dewlap is much more developed, the sheath is pendulous, the bones are thicker, and the legs smaller and thicker in proportion to the body. The tail in both the breeds is very long, and in the <i>Risā</i> it is finer and more tapering which is considered a good point indicating activity. One important feature in both the breeds is a slight but distinct depression on the forehead which makes it easy for one to distinguish the Bahraich cattle from the Doab and Muttra (<i>Kosi</i>) cattle in which there is a more or less bulging out in the forehead. The forehead in the Bahraich breeds is usually wider than in the indigenous breeds of Bara Banki, Lucknow, and Unao.</p> <p><i>Risā</i> cows are often crossed with superior <i>Nānpārā</i> bulls of the western part of the <i>Nānpārā</i> Tahsil, and calves thus produced are larger in size than ordinary <i>Risā</i> animals.</p> <p>In the north-west of the <i>Nānpārā</i> Tahsil on the other side of the river Sarju, the cattle, though belonging to the <i>Nānpārā</i> breed, are distinctly superior in quality to those found in the vicinity of <i>Nānpārā</i> which is due to better and more free grazing. On proceeding further west and crossing the <i>nālā</i> called Chuka, one comes across some cattle still better in appearance which have sprung up by crossing the <i>Nānpārā</i> cows with the bulls of Khairigarh and Dhaurahra breeds of Kheri and the Malwara breed of Nepal. Here we find some specimens of such a mixture of strains that it is not possible to class the animals under any distinct breed.</p> <p>The <i>Nānpārā</i> breed, as it exists now, is no longer a pure breed. A good deal of Dhaurahra blood has gradually got into it, and the excellence of the good specimens of <i>Nānpārā</i> animals is due chiefly to this mixture. On the whole, <i>Nānpārā</i> breed is inferior to all the famous breeds of Kheri, and the reason lies in the fact that the Dhaurahra breed, whose mixture with the <i>Nānpārā</i> has improved the latter, is decidedly the least valuable of all the breeds found in Kheri.</p>
Desī breed.	<p>The indigenous cattle of the Bahraich and the Kaisarganj Tahsils, which are called <i>Desī</i> or <i>Tehra</i>, are smaller in size than the <i>Nānpārā</i> animals and much poorer in quality. The best of them show in an imperfect degree some of the features of <i>Nānpārā</i> and <i>Risā</i>, but never equal them in any respect.</p>

The Cattle of Bahraich. (S. M. Hadi.)

AND
BUFFALOES.

Wild cattle called *Bangaila* are found in the jungles of Nánpára and Bhingá. I saw a few of them near Motipur. They are very shy and run away when they see a man coming towards them. Liberty with plenty of grazing and no work has made them fat and powerful beasts of very symmetrical features. They do a good deal of damage to crops, and the cultivators have to enclose fields with sticks in order to protect the crops from their inroads. They are the progeny of the cattle led astray from time to time from the village herds, and having remained at full liberty they gradually became wild. Domestic cows are sometimes covered by wild bulls, and the calf got from such a congress is said to be shy, more difficult to break and less hard-working than ordinary bullocks. Attempt is said to have been made in some places to catch and train wild bullocks, but the animals thus caught either died or refused to work properly. It is not the custom to catch wild calves when very young. This should be done, at any rate to see whether such a calf would not turn out a good working bullock if reared with domestic calves.

Wild cattle.

3.—Description of grazing.

According to the latest returns there are altogether about 435,000 acres of grazing land in the district (the Oudh Forest excluded), i.e., about 28 per cent. of the total area, the largest proportion of grazing area being situated in the Parganas of Nánpára (87,500), Hisámpur (67,200), Bahraich (55,800) acres. The total number of cattle including buffaloes is about 9,000,000, and there are about 2 lakhs of other animals; thus there are roughly about 40 acres of grazing land to each 100 animals, which is evidently insufficient, and it is for this reason that owners of large herds have to send their cattle to Nepal beyond the borders of the district and to places in the Oudh Forest where grazing is allowed on payment of a fee.

Area of
grazing land.

In the Nánpára Estate, a fee of 4 annas per head of buffalo and 2 annas per head of cow per annum is charged from professional breeders only, such as *Ahirs*, *Gujars*, *Ghosis* and *Gaddis*, for grazing on the pastures. Nothing is charged from high caste breeders. The nature of grazing in the greater part of the tahsil of Bahraich is poor. It is a little better in Kaisarganj and the best grazing is found in the tahsil of Nánpára where there is abundance of pastures and jungle. In the Nánpára pastures, *dub* (*Cynodon Dactylon*) is the commonest grass. In Chardá, *janewa* grows along with *dub*, but in Bahraich and part of Nánpára a well-known grass called *sewai* (*Panicum colonum*) grows largely in the rains, and the cattle of the places where it is found owe their excellence to some extent to the nutritious properties of this grass. In the jungles where *sakhu* grows extensively, *kans* grass is abundant, but this is eaten only as long as the leaves are tender. Dung dropped by animals is not picked off, and tends to keep up the richness of pastures. The pastures in the district are used chiefly for grazing in the rainy season; when this season is over cattle are sent by breeders chiefly to Nepal where there are better natural pastures.

Grasses
available.

4.—Stall-feeding.

In the Nánpára Tahsil, where pastures are large, stall-feeding is resorted to in very exceptional cases and only by well-to-do men who wish to bring up a pair or two of bullocks for use in *Bahli* cart. They buy calves at the age of one and a half to two years, and feed them at night on *bhusa*, rice straw, millet and maize stalks, cake and some gram, and send them out for grazing by day, but in Chardá, Bahraich and other Parganas, where there is insufficiency of pasture lands, cultivators having only a few

Stall-feeding.

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Cattle-food.	<p>young calves intended for agricultural work feed them in stalls on grass, straw, and millet and maize stalks. Those having a large number, say eight or ten, have to send them at the end of the rains with herds of large breeders to distant pastures where they remain until the end of the hot weather. Similarly, working bullocks are stall fed in the cold weather when rice straw, green weeds and <i>lahi</i> (mustard) straw are given. After the <i>rabi</i> crops have been harvested, the cattle pick up what they can get in the empty fields and are given <i>bhusa</i>, while in the rainy season they are again tied and fed on cut <i>sewai</i> grass and <i>bhusa</i>. <i>Chari</i> is given from the middle of October to the end of December.</p>
Management of cattle.	<p>5.—General management of cattle.</p> <p>Cows show a desire for the bull when between three and four years of age. When in heat, they are covered by the breeding bulls in the herd, or taken to a bull elsewhere. No special treatment is adopted during pregnancy. When the calving is over, the young calf is taken and tied under a shed and the mother is allowed to go out with the herd for grazing. The calf thus gets no milk by day. When four or five months old, it learns to eat blades of grass and is then allowed to go with the mother to the pasture. When there is little grazing, the calf remains with the mother which is stall fed. The calf is weaned at the age of 7 or 8 to 18 months according as the mother is <i>barsawal</i> or <i>dobarsi</i>. But some calves are sold off at the early age of 6 or 7 months in order that the cow may again become in calf quickly. Cows calving every year are called <i>barsawal</i>, but a larger number calve every two years, and such cows suckle the calf for about one year to 18 months. A few calve every three years and are called <i>tikanna pivat</i>; they suckle the calf up to 24 years. An <i>ekbarsi</i> cow becomes in calf again within four months of calving, a <i>dobarsi</i> within 12 months, a <i>tikanna</i> within 24 years. Old rotten curd (kept for 10 to 15 days in open air) mixed with some salt given once a day for two or three days is said to bring a cow into heat. Such curd is called <i>chaneth</i>, and its effect is said to appear in ten or twelve days. The root of a creeper called <i>Bitrakand</i> is also given along with salt and is said to bring about the same result.</p>
Food available in different seasons.	<p>In the rainy season no difficulty is felt in providing fodder for cattle locally, as grass grows almost everywhere. The herds of cows are therefore kept throughout the rains in the villages where the owners dwell, and live on grazing only. Plough cattle are, however, given some cut grass and green maize stalks at night in addition. In the cold weather when local grass begins to fall short, the owners of large herds, chiefly <i>Ahirs</i>, <i>Ghosis</i> and <i>Gujars</i>, send the herds out to regular pastures, a few of which are situated in the north and north-west of Nánpara and in the Government Forest Reserve, but most of the large herds are sent further north beyond the limits of the district into the Nepal territory where the pastures are larger in area and are covered with better and more luxuriant grass which keeps green throughout the year. Cattle are also sent to the other side of the Gogra in Kheri where there are said to be more extensive and rich pastures than in Bahraich. One or two bulls usually accompany each large herd of cows sent. One to three members of the family to which a herd belongs usually go with the herd to look after it. These persons erect temporary sheds to live in while at the pastures, and also make enclosures with wooden beams and sticks in which the cattle are housed at night in order to protect them from wild animals. Sometimes these enclosures are partly thatched. The cattle graze on the pastures all day and are brought into the enclosure at night, but are not tied; places where herds are thus kept are called <i>Gaurhis</i>.</p>
Grazing.	

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Herds are grazed in this manner at *Gaurhis* until the end of the hot weather, and in the beginning of the rains they are taken back by owners to their respective houses where they again graze on the local grass land.

While at the *Gaurhis*, the cows are sometimes incidentally covered by bulls of the *Padnaha* breed (particulars of the latter are not fully known, but it is said to be a superior breed existing in Nepal) and also by bulls of the Malwara (Nepal) and the Dhaurahra and Khairigarh breeds of Kheri which are held in higher estimation even than the *Padnaha*. The calves born of such bulls are admittedly superior in quality.

This indiscriminate process of crossing has been going on, as in other cattle districts, for a considerable number of years, and it is therefore certain that the *Nānpārā* breed is not an altogether pure breed in itself. No attempt even seems to have been made to keep up the breed, and for this reason some of the *Nānpārā* animals are found to be far superior to others. The same remarks apply to *Risā* also whence cows are similarly sent to *Gaurhis* and are sometimes crossed there purposely or accidentally by foreign bulls. Milk is seldom drawn from the cows while they are at the *Gaurhi*, the whole being allowed to the calf. Calves are never hand-fed. The dung from the herds is used partly as fuel and what is not so used is left behind at the *Gaurhis*. Calves are sometimes sold at the *Gaurhi* to purchasers from all parts of the district, and from Basti, Gorakhpur and eastern districts of Oudh, who get them there at a cheaper price. Those not disposed of at the *Gaurhis* are sold on return to their villages or in cattle markets.

As the livelihood of the breeders depends upon the sale of their animals, they frequently part with calves when they are very young (6 months to 1 year old). A good one-year old calf of the indigenous *Nānpārā* breed, if properly fed at a *Gaurhi*, would fetch as much as Rs18 or Rs20, while one having *Malwara* or *Padnaha* blood in it would sell for even Rs25. But generally the price of a *Nānpārā* yearling calf varies from Rs12 to Rs15. In the Pargana of Charda, where the specimens of the *Nānpārā* breed are generally inferior on account of poor grazing, a calf when one year old is worth Rs6 to Rs12 only. The price of a 4-year old bullock ranges from Rs18 to Rs30 according to its size and quality and the work (plough or cart) which it is fit for. An equally old bullock born of a *Nānpārā* cow and a Malwara or Khairigarh bull is considered to be worth Rs40.

The cows being very poor milkers are not bought by cattle dealers coming from other districts. They sell at Rs4 or Rs5 each, and are often sold in lots by one breeder to another.

Cattle which do not go to *Gaurhis* are fed on dry maize stalks and rice straw in the cold and hot weather. Some scraped grass is also given at night to the draught bullocks. The maize stalks are not chopped, but cut into bits of 2 to 3 feet in length and put before the animals.

Fodder crops are not grown by the breeders for two reasons, viz. :—

- (1) The breeders are not good cultivators and do not possess holdings large enough to grow sufficient fodder for their large herds. Instances are not rare of breeders who do not cultivate at all.
- (2) Rent is largely paid in kind in Tahsils *Nānpārā* and Bahraich, and villages are held by *Thikadars* who do not allow cultivators to grow fodder which would be of no use to themselves if given to them as rent, while the tenants are not willing to pay the heavy rent in money for the land they might wish to keep under fodder crops or to give that quantity of grain

Grazing.

Crossing.

Prices of
cattle.Foddercrops
not grown.

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The Cattle of Bahraich.

which according to appraisement would be due to the *Thikadars* if the land were to be sown with a cereal crop. *Chari (jowar)* is therefore seldom sown except in those parts of the district where cash rents are paid or where pasture areas are so small that the cultivator who cannot afford to send out his cattle to the *gaurhis* finds it necessary to grow it in order to save his cattle from starving. One bigha of a good crop of *jowar* is considered sufficient to feed two pairs of bullocks for one month.

6.—*Determination of age of animals.*

Determina-
tion of age

People tell the age of bullocks by examining their teeth. Calves are said to shed the middle pair of their temporary teeth when 3 years old; and after every 6 to 9 months, one pair falls out and is replaced by a permanent pair until the animal gets all such teeth at the age of 5 to 6 years. Some get all their permanent teeth before they are five. Bullocks of the latter class are called *Bharakdata* or *Bhasakdata*. An animal with no permanent teeth is called *Udant*; with two permanent teeth it is called *Dodata*; with four such teeth *Chaukar*; with six, *Chhakkar*; with eight, *Mila hua*. When the bullock is in the stage of getting the fourth or last permanent pair it is called *Ochha kani*. Instead of stating the number of years, the breeders and dealers generally use the above technical terms to indicate the age of animals. There is some religious objection on the part of Hindus to examine the teeth of cows. The age of the cow is determined chiefly by her appearance. People pretend to tell the age by the number of knots on the horns, but this is obviously an unsafe method.

7.—*Uses to which cattle are put.*

Uses of cattle

The smaller bullocks (*Risia* breed) are used for ploughing, treading grain and working oil and sugar mills. The larger (*Nānpārā*) bullocks are used for *chhakra* (cart) as well as for agricultural work. The cows are used chiefly for breeding and rarely for milking purposes.

8.—*Age at which animals are put to work.*

Age when
worked.

The animal is first put at work when 3 years old, and by the age of 4 it gets into regular work. In course of breaking, hard work is not taken from the animal. Bullocks intended for cart exclusively are not put to work until they are 4 years old, and at this age they are first used as the front pair in a 4-bullock cart, and when 5½ to 6 years they are used as the hind pair.

9.—*Yield of milk.*

Yield of milk

The average yield of milk from a cow is about ½ seer and the highest does not exceed 1½ seers. In Parganas having poor and small pastures the highest yield of milk is said to be 1 seer. This is the reason why the cows are seldom milked, buffalo's milk being used generally for eating and *Ghi*-making. The cow's milk in the Terai or villages situated in or about the forest is considered unwholesome.

Cattle-market.

Cattle-
markets.

The cattle-markets in the district are—

- (1) Gandara, Pargana Hisāmpur.
- (2) Fakhrpur, " Fakhrpur.
- (3) Mahsi " Fakhrpur.

I attended the first two of these markets personally. Animals are brought there for sale from various parts of the district and also from Khairgarh and Dhaurahra in Kheri.

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The following is a statement showing the sale of cattle at each market. The figures were obtained through the Tahsildar of Kaisarganj :—

Serial No.	Pargana.	Name of village.	Name of the proprietor of the village.	Number of cattle sold.	Price.	Remarks.
1	Hisampur	Bazar Gandara	Sheikh Samam Ali.	1,999	₹ 18,903 4 0	The figures in column 5 have been taken from the registers kept by a Muharrir of the estate and represent the number of cattle sold from 1st February 1894 to 31st December 1894. The price of 957 cattle could not be ascertained, as papers relating to their sale are said to have been destroyed by fire; and the figures in column 6 therefore represent the price of 1,042 cattle only.
2	Fakhrpur	Bazar Fakhrpur	Musaamat Bhagwandas.	6,111	1,04,860 0 0	The figures in column 5 represent the number of cattle sold from the 10th of March 1894 to the 31st December 1894.
3	Ditto	Bazar Mahsi	Raja Jagatjit Singh.	2,906*	47,100 0 0	* These figures are for the whole year.

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There is also another cattle-market called *Kuti Pem Das*, the figures of which could not be procured.

10.—Breeding Bulls.

Breeding
bulls.

Breeding is done from three kinds of bulls—

- (1) *Brahmani* bulls whose numerical strength is the highest. Owners of large herds and wealthy Hindus dedicate young and promising calves of good constitution, specially selected for breeding purposes, to the memory of their deceased relations. The dedication is accomplished (a) by branding the calf, (b) by sprinkling milk over the calf. They roam about at perfect liberty. Bulls thus let loose on religious grounds by Hindu breeders are generally kept by them in their own herds; but those let loose by persons not owning a herd, remain in different herds as they choose.
- (2) *Private Bulls*.—Owners of large herds sometimes keep bulls of their own which are not Brahmani bulls. Strong and healthy calves are usually selected for this purpose.
- (3) *Draught Bulls*.—Bulls used generally for draught work are also allowed to cover cows occasionally. This practice is not common in the Nānpára Tahsil, but in the Bahraich and the Kaisarganj Tahsils where the number of Brahmani and private bulls is much less, the working bull is more freely used for breeding purposes.

The apparently profitable plan of importing young calves for breeding purposes from Khairigarh, where there is an admittedly superior breed, is not adopted. Nothing is done to prevent a bull from breeding before it has reached maturity, and it is allowed to work on as long as it is fit for the purpose. The period of service of a bull on an average extends over ten years. A bull which commenced work at an early age is admitted to become unserviceable quickly. Even when old, the bull is not isolated from the herd, although it is well known to the breeders that a calf bred from an old bull is constitutionally weak, and less valuable. A well-grown bull is considered sufficient for a herd consisting of about 75 cows. No steps are taken to regulate the number of coverings in a given time. Bulls are not fed systematically and live upon what they can get while grazing. Contrary to the custom in Muttra, the Brahmani bulls in Bahraich are not allowed to eat from standing crops, and when found in corn-fields they are beaten and turned out even by the Hindu cultivators. They are thus compelled to live on grass only. In some places bulls are kept tied when the crops are advanced, and are then fed on scraped grass or straw. I was surprised at the small number of bulls that I saw during my tour. One reason was that bulls belonging to regular breeders had mostly gone with their herds to the *gaurhis* in Nepal at the beginning of the cold weather, but such herds are not numerous, and one would have expected to see at least one bull in every two or three villages. It is thus abundantly clear that during the eight cold and hot weather months of the year, when nearly all the best bulls are gone out, the cows that remain in the district (and their total number must be considerable), which belong to ordinary breeders and cultivators, are bound to be served chiefly by the working bullock and partly by the few insufficiently and badly fed breeding bulls

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found here and there. In Madhwapur, where there were hundreds of cows, I did not find a single regular breeding bull. A working bullock was used for breeding.

The indifference of the people to the subject of breeding is clear from the fact that, where grazing area is small, a breeding Brahmani bull is not allowed to stop in any village, but is turned out from one village to another in spite of an apparently sufficient demand for its services in each.

Careless breeding.

II. OTHER REMARKS.

(a) *Castration of animals.*

About 70 per cent. of bullocks used for agricultural work are castrated; and among the cart bullocks, too, the percentage of castrated animals is high. Such bullocks are capable of harder work extending over a longer period and are of milder temper than the non-castrated. Castration is done chiefly by *Chamars* by crushing the spermatic cord with a piece of stone and more frequently with the horns of a stag. Calves of from 4 to 4½ years which is considered proper age for the operation are castrated. Unruly bulls are also sometimes castrated at an older age. Animals below 4 are seldom castrated.

Castration.

(b) *Cattle disease.*

The most fatal diseases are rinderpest and anthrax fever. These cause much havoc. On the occurrence of contagious diseases, the most important plan of isolating the sick animals from the herd is not adopted by the breeders. There are no arrangements in the district to render veterinary assistance to them when there is an outbreak.

Cattle disease.

(c) *Practical suggestions for improvement of the Bahraich cattle.*

(1) Bulls of the Khairigarh and Parehar breed should be procured from Kheri and distributed in the Nānpārā Tahsil, but more particularly in the tahsils of Kaisarganj and Bahraich where cattle are poorer than in Nānpārā.

Practical suggestions.

(2) Measures should be taken to keep up the *Risā* breed in which the bullocks, though of small size, are cheap and excellent animals for agricultural work.

(3) The use of Dhaurahra bulls for breeding purposes should be avoided.

(4) It would be interesting to see the result of crossing the Bahraich breeds with Hissar bulls, though I cannot recommend the measure strongly, as I presume the progeny will consist of slow movers not liked by the people of the district.

(5) The breeders should be induced not to allow old bulls to accompany their herds to the Nepal pastures or to breed indiscriminately as they do now from old emaciated cows. The importance and the advantages of the system of breeding by selection should be explained to them.

(6) The cultivation of fodder crops, like *jowar*, should be extended and that of *guar* (*Cyamopsis psoralioides*) Canadian oats, Sorghum, Reana and Guinea grass should be introduced.

(7) The District Board and the Municipal Boards of Bahraich, Nānpārā and Bhinga should be induced to take up the management of some of the bulls recommended.

(8) Skilled medical aid should be given on the occurrence of cattle disease.

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The Cattle of Bahraich.

Measurements, etc., of the cattle of the breeds found in the District of Bahraich, Oudh.

Sex.	Age.	Height at shoulder.	Height at croup.	Height at elbow.	Length.	Length of horn.	Length of ear.	Length of face.	Breadth of forehead.	Girth at chest.	Girth at abdomen.	Girth of forearm.	Girth of shank.	Length of neck.	Length of shank.	Colour of skin.	Colour of hair.	Remarks.
	Yrs.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.			
Bullock.	7	3 8	3 10	2 1	5 7½	0 8	0 9	1 6	0 8	5 3	6 3	1 0	...	1 4	1 5	...	White.	
Do.	4	3 6	3 7	X	5 7½	X	0 7	X	X	X	X	X	X	X	X	...	Do.	
Do.	7	3 7½	3 9½	2 0	5 7½	0 9	0 9	1 0	0 6	4 9	5 8½	1 0	...	1 6	1 5	...	Do.	
Do.	7	3 9	3 9½	2 0	5 6	1 0	0 9	1 5	0 6	5 0	6 0	1 2	0 8	1 7½	1 6	...	Grey.	
Do.	5	3 6½	4 6	X	5 0	0 8	0 6½	1 5	0 6	4 7	5 2	0 10	0 6	1 3½	1 6	...	White.	
Cow.	9	3 0	3 2	1 9	4 2	0 7	0 6	1 4	4 4½	3 9½	4 3	0 8	X	0 8½	1 5	...	Grey.	
Do.	8	3 4	3 5	0 11	5 1	0 8	0 8	1 4	0 5	4 4	5 4	0 10	X	1 2	1 5	...	Dark grey.	
Do.	10	3 8	3 9	2 2	5 2	0 6½	0 10	1 5	0 6	4 6	5 5	0 11	0 7	1 3	1 8	...	Do.	
Do.	11	3 8	3 9	2 2	5 0	1 1	0 9	1 5	0 6	4 7	5 5	0 11	0 7½	1 4½	1 7	...	Grey.	
Bullock.	5	3 8	3 9½	2 4	5 6	1 1	0 9	1 1	0 6	5 2	6 5	1 0	X	1 5	X	...	Dark grey.	
Do.	7	3 7½	3 9½	2 0	5 4	0 5½	0 10	1 4	0 6	5 1	6 7	1 0	X	1 5	X	...	Dark.	
Do.	5	3 8	3 9½	2 4	5 6	0 1	0 9	1 1	0 6	5 9	6 5	1 0	X	1 5	X	...	White.	
Do.	8	4 4	X	X	X	X	X	X	X	X	X	X	X	X	X	...	Grey.	
Do.	9	4 0	4 0½	2	X	1 2	0 9	X	X	X	X	X	X	X	X	...	Do.	
Do.	8	4 0	4 3	2 4	X	1 3	0 10	1 7	0 7	5 5½	6 5	1 2	0 11	1 6	1 9	...	White.	
Breeding bull.	4	3 7	3 9½	2 0	5 6	1 0	0 9	1 4	0 6	5 0	6 0	1 1	0 7½	1 5	1 5	...	Dark grey.	
Bullock.	4	4 0	4 0	2 4	5 0	0 7	1 0	1 7	0 6½	5 2	5 7	1 2	X	1 3	X	...	Do.	
Do.	4	3 10	3 10	1 8	X	0 9	X	X	X	X	X	X	X	X	X	...	Do.	

Cross marks denote that measurement is not available.

The Cattle of Kheri. (S. M. Hadi.)

AND
BUFFALOES.

CATTLE IN THE KHERI DISTRICT.

I. SUITABILITY OF THE DISTRICT FOR CATTLE-BREEDING.

Kheri occupies the most prominent position among the districts of Oudh, as a centre for cattle breeding, and supplies a large number of draught bullocks to the whole of Oudh and to the districts of Gorakhpur, Basti, and Azamgarh. Although the grazing area is insufficient for the number of animals existing in the district, the pastures are good and extensive and the climatic conditions very favourable for successful breeding.

Suitability
of Kheri.

2. Breeds.

Although five breeds are said to be found in the district, there is evidence to show that no breed, with the exception perhaps of the Parehar, has been properly kept up, and typical pure bred animals of the various breeds are not common.

Breeds.

1. *Parehar*.—This is the most important breed, and the one which is tolerably free from mixture of other strains. Parehar is a term applied to the tract of land situated between the rivers Katná and Gumti, in the tahsil of Mohamdi. The breed found in that part of the district goes by the name of *Parehar*. The villages Kalua and Nakara are particularly famous for their cattle of this breed. In the eastern parts of Oudh the *Parehar* animals are popularly known as cattle of the "*Bangar*" breed. Villages Barwar, Rajwapur and Dilawarpur also have some reputation for animals of the *Parehar* breed. The good qualities of the breed are attributed by the people to the effects of the water of the river Katná, on the banks of which the herds graze in the jungle.

Parehar
breed.

The main distinctive features of this breed are :—

- (a) Horns generally long and pointed, but elegant.
- (b) Tail thin, tapering and small, terminating with a luxuriant tuft of hair (*chawaria*) which is almost always white, whatever may be the colour of the animal. In selecting a bull for breeding purposes, particular care is taken to see that it has white hair at the end of the tail, in order to maintain this special feature of the breed.
- (c) Size moderate and body symmetrical.
- (d) Sheath very small, sometimes almost absent. A bullock having such a sheath is called *Phent-bandha*.
- (e) Hair fine and glossy.
- (f) Testicles small.
- (g) Ears small.
- (h) Colour grey, white or broken (usually black with white patches); other colours are seldom met with.

The bullocks of this breed have a highly irritable temper, are very fast movers, and are said to be more enduring than animals of any other breed. In cart or plough they seldom require whipping, and are considered most valuable for all kinds of draught work. The superior kinds of bullocks are used chiefly in *Bahli* and *Rath* in which they trot fast. A promising, one-year old calf costs Rs18 to Rs30 and a full-grown bullock of very good quality from Rs100 to Rs150. Ordinary plough bullocks cost Rs30 to Rs80 a pair. White colour is much appreciated and is considered to be indicative of strength and capability for hard work.

Broken colours give an imposing appearance to the animal, but do not indicate equally good working capacity. Dark grey is said to be inferior to white. Black is considered bad, and brick colour (which is rare) still worse. These remarks about colour apply equally to all other breeds of the district.

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The Cattle of Kheri.

Bhur breed.

2. *Bhur*.—This breed is found between the rivers Sarju and Purani Chauka. It differs from the *Parehar* in generally being of larger size and having coarser hair. *Bhur* bullocks are admitted to be slow movers as compared with the *Parehar*, and have a comparatively docile temper. The animals of this breed are most largely used for draught work in the district. Five-year-old *Bhur* bullocks of average quality cost from Rs50 to Rs80 a pair, or even more.

Khairigarh breed.

3. *Khairigarh* breed occurs between the rivers Sarju and Mohan. This breed hardly exists now as a distinct breed on account of constant mixture with it, of *Bhur* blood which has been going on for a considerable time on account of careless breeding. Some fine specimens are, however, found here and there in the Pargana of Khairigarh of the pure and well-bred bullocks of the *Khairigarh* breed, and they differ from the typical *Bhur* bullocks in the following particulars—

- (a) more beautiful and pointed horns, of moderate length, with their points turned backwards (*maura*);
- (b) a larger size;
- (c) more symmetrical features and elegant shape;
- (d) somewhat larger sheath, though this point is not distinctly marked in all animals;
- (e) finer bones;
- (f) broader forehead;
- (g) longer tail;
- (h) finer hair;
- (i) broader chest.

The *Khairigarh* bullock is generally swifter than the *Bhur*, is nearly as hot tempered as the *Parehar* and more so than the *Bhur*. It is admirably suited for cart use.

A pair of bullocks of average quality costs about Rs50 when about 5 or 6 years of age, but a first class pair is worth from Rs150 to Rs200. The best specimens are found in Khairigarh, Singahi Kalan and Motipur.

Majhra-Singahi breed.

4. *Majhra-Singahi*.—Closely allied to the *Khairigarh* breed is a breed known as the *Majhra-Singahi* found in the north-west of the district in the Pargana of Palia. In features it resembles the *Khairigarh* breed, but the cattle are of larger size and enjoy nearly the same reputation as the *Parehar* breed for its quick pace. It is stated, but I cannot affirm with certainty, that the excellence of this breed is due to the presence in it of the blood of *Panwar* breed which is most famous in the adjoining district of Pilibhit and is superior to *Bhur* and *Khairigarh*. It is also probable that the good quality of the *Majhra-Singahi* bullocks may be due to the excellent grazing still available in the Pargana of Palia on account of abundance of jungle. A very large number of 1 to 1½ year old calves of this breed are sold every year to cattle dealers from Bahraich, Sitapur, Azamgarh and Ghazipur.

The highest price of a pair of full-grown *Majhra-Singahi* bullocks is Rs200 and the lowest Rs10. Good 4-year old calves fetch from Rs30 to Rs50; 5-year old, Rs50 to Rs65.

Dhaurahra breed.

5. *Dhaurahra*.—This breed commonly found in the tract of land bounded on the north and south by the rivers Sarju and Chauka, on the east and west by Pargana Firozabad and Nigasan, respectively.

This is the least valuable of all breeds found in the district. The bullocks of this breed are often taller than those of other breeds, and have rough and coarse hair, a protuberant belly, heavy dewlap, thick horns, often small and not pointed, toes widely set apart, sheath mostly pendulous,

The Cattle of Kheri. (S. M. Hadi.)

AND
BUFFALOES.

bones thick, legs small in proportion to the body, but fleshy, rough and thick. They are said to be not unsuitable for heavy draught work, but are notorious as slow movers; and where much application of strength is needed they would not work unless frequently whipped. They have, however, a gentle temper. Typical specimens of this breed are found in villages Udaipur, Chitkaha, Soji, Mahdeo, Amethi, and Shahpur.

The closeness of the Nánpára Tahsil in the district of Bahraich to the Pargana of Dhaurahra has led naturally to a free covering of the *Nánpára* cows with the bulls of the *Dhaurahra* breed, resulting, as already mentioned, in the improvement of the latter, which in its indigenous form is considered to be inferior to the *Dhaurahra* breed.

Young stock of *Dhaurahra* cattle are sold chiefly to the cattle dealers coming from Bahraich, Gonda, Faizabad, Gorakhpur, Basti, Sitapur, and Bara Banki.

* A one-year old calf costs from Rs 5 to Rs10.

„ two „ „ „ „ 10 to „ 15.

„ three „ „ „ „ 15 to „ 62.

3. Description of grazing.

The pastures in the district are similar to those described in the note on Bahraich cattle, but being insufficient for the existing number of cattle the breeders depend mainly upon the grazing available in the jungles of Nepal adjoining the northern boundary of the district. The grazing area in the district being gradually broken into arable land is decreasing every year, and with it the number of cattle is also decreasing. The breeders say that if the Nepal pastures were not within their easy reach, it would be impossible to maintain the reputation of the district as a cattle-breeding centre.

The commonest grasses in the local pastures of the district are *Dub*, *Falbol*, *Mayari*, *Jhusa* and *Janeva*, while in the pastures of Nepal better and more luxuriant grasses, such as *Sindhua*, *Garg'ia*, *Bael*, *Ritwa*, *Bakas*, *Ulla Garer*, *Mahur*, *Mundui* and *Chupri* grow abundantly and are said to be nutritious. In the Khairigarh estate one anna per head for cows and four annas per head for buffaloes are charged as grazing fees for the last three months of the rainy season.

In the Chiltwa Gaurhi (pasture) of the Khairigarh jungle 8 annas per cow and 1 rupee per buffalo are charged annually. The Taluqdars of Bhur, Dhaurahra, Firozabad, and Isanagar allow grazing free of cost in their estates to cows only, but charge for grazing of buffaloes. In the Nepal territory two places are famous as grazing centres, viz.:—

- (1) The Ilaga of Malwara.
- (2) The Ilaga of Kanchanpur.

The herds of the *Dhaurahra* and *Khairigarh* breeds generally go to the former and those of the *Parehar* and *Majhra-Singohi* to the latter; of the herds of the *Bhur* breed, some are sent to one and some to the other Ilaga. The herds graze in the Nepal pastures from October to June, and the fee charged for this period is $2\frac{1}{2}$ to $3\frac{1}{2}$ annas per head for cows and 8 annas per head for buffaloes. As soon as the rains set in the breeders bring the herds to their homes in the district for the following reasons:—

- (1) In the rainy season ticks and mosquitoes are too abundant and troublesome to the animals at the Nepal pastures.

Dhaurahra
breed.

Pasture.

Conf. with p.
3.

Grasses.

Charges for
grazing.

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The Cattle of Kheri.

- (2) During the rains the young stock reared at the pastures of Nepal is sold largely in the district to dealers from various quarters.
- (3) There is sufficient grass at home to feed the herds.
- (4) The herds are kept on fallow lands reserved for *rabi* crops in order to manure the lands.
- (5) The grass at Nepal pastures is considered to be unwholesome for the Kheri herds in the rainy season.
- (6) The herds have to be kept accustomed to crossing the river between the Nepal territory and the Kheri district in the rains.

If they are not made to swim across the river in one rainy season they would give considerable trouble to the owners in the next in trying to import them back to the district which is the nearest profitable market for them.

While kept at the Nepal pastures the cows live on grazing only. Common salt is given once or twice a month in the quantity of 15 seers to each 100 animals with a view to improve their appetite and prevent costiveness.

This is, however, not done in the months of December, January and February when, owing to want of luxuriance of natural fodder, it is not desirable to sharpen the appetite.

4. Stall-feeding.

Stall feeding.

Stall-feeding is not resorted to except in the case of calves specially brought up for *raths* and *Bahli* or cows for milk.

Bhusa or *karbi* is given to such animals with oil-cake in the form of "sani", and some concentrated dry food, such as gram, barley or maize is also given.

In Parehar calves specially fed in stalls get about one seer of cooked *Arhar-ki-dal* daily until they are one year old and afterwards they are allowed daily about one seer of wheat flour (to which a little salt is added) in the shape of balls (*loi*), besides grass and *bhusa*.

Milk cows get oil-cakes, *bhusa*, grain, and bran in various quantities.

5. General management.

General management.

Cows become in calf between three and four years of age. Those belonging to the large herds (*langurs*) are usually covered by the bulls kept with the herds. The covering is usually so arranged that the cows mostly calve during the period in which they remain at the Nepal pastures (*Gaurhis*).

Soon after delivery, the right hind leg of the young calf is tied with a rope to a peg where the mother suckles the calf for 8 or 9 days. After this period the calf gets strong enough to break the rope which it does and then goes out to the pasture with the mother. The cows graze all day and are housed within enclosures at the *gaurhis* at night as mentioned in the Bahraich note, or are only collected together but not housed.

When the calves are six months old they are caught by special contrivances and two or more of them are tied together by the neck in order to be kept under control.

The following plan is adopted in order to bring the cow into heat :—

Wheat one seer, *Ajwain khorasani* (*Hyocyamus niger*) 1 oz., liquid curd (*matha*) two seers are mixed together in an earthen pot which is closed and buried in an old dung heap for a week; when well fermented it is dug out and the mixture is given to cows in two or three instalments.

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A remedy for barren cows is not known.

A heavy weight in the form of a bell is suspended to the neck of such cows. It rings as they move along and its tinkling renders it easy for the owners to find a clue to their animals in the thick jungles. The constant suspension of this heavy weight means work for the cow which therefore loses weight, and if the barrenness be due to excess of fat it is thus got rid of.

Cows that are poor milkers do not command high prices. They are generally sold in lots at Rs4 to Rs6 per head; when the herds return from Nepal in the rains they are grazed at home on local pastures.

The plough bullocks live chiefly on grass and *bhusa* and get cut *chari* (millet) in the cold weather, if available. They are not grazed during the working period. Some cultivators of fair means give a small allowance, in that season, of mustard oil-cake to their plough bullocks.

6. Determination of age.

Breeders can tell the age of animals by looking at their teeth pretty accurately. A calf gets its first permanent pair when three years old, and after every six to nine months another pair of temporary teeth is replaced by a permanent pair. Calves acquire their teeth when between 5 and 6 years of age and are then called *milahua*.

The age of cows is generally told by appearance.

Determina-
tion page.

7. Use to which cattle are put.

Fine bullocks of the *Parehar* and *Khairigarh* breeds are used chiefly for *bahli* and *rath*. Ordinary bullocks of all breeds are used in *chhakra* cart and for plough and sugar mills. Cows are used chiefly for breeding, and are seldom milked.

Single bullocks are also used for loading grain, vegetables, etc.

Uses.

8. When put to work.

Calves are first put to light work when three years old and get into regular work at the age of four.

9. Yield of milk.

Cows in the *langars* (herds grazing in Nepal) are never milked, the whole milk being allowed to the calf. The few stall-fed cows kept specially for milk yield from half to one seer per diem. It is said that milk in the Nigasan Tahsil is generally injurious to health, owing probably to the fact that cows eat *Ganja* (hemp) plants which grow abundantly with common grass.

Yield of milk,

10. Cattle-markets.

There is no cattle-market in the district. A fair is held at Gola Gokran Nath annually, at which prizes are awarded for good specimens of cattle, and bullocks are also sold.

Cattle-
market.

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The Cattle of Kheri.

11. Bulls.

Bulls.

Brahmani or private bulls are usually kept in each herd (*langar*) and go with it to the *gaurhis* or pastures of Nepal. Breeders select good calves to serve as bulls. If intended to be Brahmani bulls they are branded; if as private bulls, fresh milk is sprinkled over them to signify their selection exclusively for breeding purposes, and after this ceremony is over it is considered a violation of the social law to put such calves to work other than that of serving cows. The Parehar owners are particularly careful in selecting good and pure-bred calves of the *Parehar* breed for breeding bulls, and similar care is also taken by the breeders of Majhra-Singahi. While at the Nepal pastures the breeders of these two tracts take all possible measures to prevent their cows being covered by the indigenous bulls of the *Malwara* and *Kanchanpur* breeds of Nepal which are considered inferior to their own. The breeders from Dhaurahra, on the contrary, try to get their cows covered by the bulls of the *Malwara* breed which is superior to the *Dhaurahra*. The good specimens of *Dhaurahra* generally owe their elegance of appearance and quality to the mixture of *Malwara* blood.

Nothing is done to prevent a bull commencing its work while it is too young, nor are old bulls excluded from the herds. The free use of *Khairigarh* bulls in *Bhur* herds and *vice versa* has been the cause of neither breed being maintained in a pure condition.

Herds from all parts of the district graze together in the Nepal pastures, and therefore the cows of one breed are sometimes covered by a bull of another. The breeders of *Parehar* seem to be, however, very careful in avoiding such crossing, and the animals of that breed therefore maintain their distinctive features and qualities in a more marked degree than those of any other.

Malwara bulls, though much appreciated by the Dhaurahra inhabitants and admitted to be superior to bulls of their own breed, are not imported into Dhaurahra nor regularly introduced in their herds while grazing in the *Ilaqa* of *Malwara*—a great drawback.

The cows that do not go to Nepal are covered mostly by the working bullocks, and the progeny, as one might suppose, is usually poor in every respect.

12. Other Remarks.

Crossing.

(a) Crossing with western breeds is seldom resorted to in Kheri. I met with only two bullocks which were crosses between a *Haryana* cow and a *Khairigarh* bull. They were taller and apparently stronger and more fleshy than the ordinary *Khairigarh* animals, and were said to be possessed of greater capacity for heavy work, but comparatively slow movers, and of more gentle temper. Although both animals were born of the same cow, yet in one the features of *Haryana* were more prominent than those of the *Khairigarh*, while in the other the features of *Khairigarh* were more marked. Such crossing may be taken to result in the deterioration as to quickness of motion but in the improvement of other qualities.

Castration.

(b) Castration is more common in *Parehar* and *Khairigarh* than in other breeds, on account of the bad temper.

Calves are castrated at the age of 4 to 5 years by pounding the spermatic cord with a piece of stone or the horn of a stag. When the operation is finished, turmeric mixed with mustard oil is applied to the testicles, and milk with a little alum is given internally. The calf gets well within a few days.

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(c) Disease.—The following is a statement showing the diseases commonly occurring in the district :—

Vernacular name of the disease.	English name.	Symptoms.	Treatment adopted by the villagers.
1. <i>Catharus</i>	Sorethroat.	Swelling of the palate, the throat and the upper portion of the wind-pipe causing difficulty in respiration. This swelling is so rapid that in two or three days only breathing becomes impossible and the animal dies of suffocation.	The only remedy used is firing with a red-hot piece of iron the swollen part round the throat.
2. <i>Chubhka</i> .	Mouth disease.	Great flow of saliva from the mouth emitting an offensive smell.	None.
3. <i>Khang</i>	Foot disease.	Appearance of ulcers in the hoofs and crusting lameness. If not properly treated, they rot and little worms begin to appear. The ulcers go on increasing in size, and in a few days the animal dies. Very often animals are affected both with <i>chubhka</i> and <i>khang</i> at the same time.	The hoofs are frequently washed with a decoction of the bark of the dhak tree (<i>Butea frondosa</i>), a remedy which is said to have the effect of killing the worms, removing the ulcers and hardening the hoofs.
4. <i>Badh</i>	Rinderpest.	Purging of blood mixed with mucus. The animal feels thirsty, but finds great difficulty in drinking water or swallowing anything. It lies down prostrate and dies in four or five days.	No effective remedy is known. A large number of cattle have been carried away by the disease this year.
5. <i>Sujua</i>	...	Contraction of one leg and subsequent lameness attended with pain and inflammation.	Firing the affected part with a red-hot piece of iron.
6. <i>Bakia</i>	...	Swelling of the whole body and more particularly the ears. Expression of great uneasiness.	A slit is made with a knife in one ear of the animal. If blood comes out profusely the animal is saved.
7. <i>Mand</i>	...	The belly becomes inflated and it appears as if a corner thereof is full of wind which requires egress. If the wind is not soon removed respiration becomes difficult and the animal dies of suffocation in a few hours.	Corninatives are administered.

Diseases.

(d) Remarks regarding improvement of breeds in Kheri.—It is neither necessary nor desirable to introduce foreign bulls into the district. The *Parehar* and the *Khairigarh* being the most valuable breeds deserve foremost attention. The former, although kept free from admixture of other strains, has been degenerating on account of want of sufficient number of bulls in the *Parehar* tract and the consequent unavoidable use in a large number of cases of the working plough or cart bullock for breeding purposes. On the other hand, the cause of gradual deterioration of the *Khairigarh* breed has been the indiscriminate crossing which seems to have been going on with the *Bhur* and partly with the *Dhaurahra* breed. A good deal of improvement can be effected by permanently locating pure-bred bulls, carefully selected for breeding purposes, in a few of the more important villages of the *Khairigarh* Pargana, so that the chances of the cows not sent to Nepal pastures (and their number is considerable) being served by the working bullocks may be minimised. The same plan might be adopted with respect to the *Parehar* and *Bhur* breeds. The *Dhaurahra* breed, though inferior to all other breeds of the Kheri district, is better than those found in other districts of *Udh* and can be greatly improved by introducing *Malwara* or *Khairigarh* bulls, the latter being more easy to procure.

Improvement of breeds.

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The Cattle of Kheri.

The agencies for providing funds to procure these bulls could be found in (a) the Taluqdars of the district, (b) the District Board of Kheri, (c) the Municipal Boards of Lakhimpur, Gola, etc., and (d) the Agricultural Department.

If the Agricultural Department were to start a cattle-breeding farm, the importance and excellence of the *Parehar* breed should be sufficient to induce the Department to open it in some suitable place on the banks of the Kathna.

Khairigarh is an out-of-the-way place, besides being too wet in the rains to be suggested as a station for breeding operations at public expense.

Cattle disease when it occurs causes much havoc, and it is highly desirable that some permanent arrangement should be made to keep a small veterinary staff in the district, its importance as the best cattle-breeding centre of a large province being a sufficient recommendation for such a provision.

It is hoped that the Gola Agricultural Fair which has of late been added to the religious *Chaiti* Fair held annually may gradually develop itself, and it would be a very proper step for Government to give pecuniary assistance to the District Officer in order to add the funds raised locally for distribution as prizes for cattle. Any encouragement given by Government or local bodies and Taluqdars to the breeders exhibiting their animals at this fair would, I have no doubt, be a step in the right direction.

Having examined the breeds of cattle in most of the districts of Oudh and the result obtained by the introduction of Hissar bulls, I can now say with certainty that, with a view to improve local breeds, it is much better to introduce Kheri than Hissar bulls in Oudh and the eastern districts of the North-Western Provinces where the people hold in high estimation the Kheri animals, especially of the *Khairigarh* and *Parehar* breeds for all draught work, and where the climatic conditions are more favourable for the Kheri than the Panjab bulls. The comparative cheapness of Kheri bulls and the facility in procuring them are other reasons in favour of their preference.

AND
BUFFALOES.

Cross marks denote that measurement is not available.

Sex.	Age.	Height at shoulder.	Height at croup.	Height at elbow.	Length.	Length of horn.	Length of ear.	Length of face.	Breadth of forehead.	Girth of chest.	Girth of abdomen.	Girth of forearm.	Girth of shank.	Length of neck.	Length of skull.	Colour of hair.	Remarks.
Bullock	Yrs. 5	4 7	4 8	2 4	5 4	1 31	0 10	2 9	0 9	5 4	7 5	1 38	6 9	1 6	...	Black with white stripes.	Female.
Do.	6	4 5	4 4	2 5	5 11	1 5	0 8	1 0	0 8	6 8	7 9	1 5	0 8	0 9	...	White.	Do.
Do.	7	4 5	4 5	2 5	5 0	1 8	0 8	1 0	0 8	6 8	7 9	1 5	0 8	0 9	...	Blue white.	Do.
Do.	8	4 5	4 5	2 5	5 0	1 8	0 8	1 0	0 8	6 8	7 9	1 5	0 8	0 9	...	White.	Do.
Do.	9	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	10	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	11	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	12	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	13	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	14	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	15	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	16	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	17	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	18	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	19	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	20	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	21	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	22	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	23	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	24	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	25	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	26	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	27	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	28	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	29	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	30	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	31	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	32	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	33	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	34	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	35	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	36	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	37	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	38	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	39	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	40	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	41	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	42	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	43	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	44	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	45	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	46	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	47	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	48	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	49	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	50	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	51	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	52	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	53	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	54	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	55	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	56	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	57	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	58	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	59	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	60	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	61	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	62	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	63	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	64	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	65	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	66	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	67	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	68	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	69	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	70	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	71	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	72	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	73	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	74	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	75	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	76	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	77	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	78	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	79	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	80	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	81	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	82	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	83	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	84	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	85	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	86	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	87	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	88	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	89	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	90	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	91	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	92	4 6	4 5	2 5	5 0	1 0	0 8	1 0	0 7	5 5	6 5	1 5	0 7	1 2	...	Do.	Do.
Do.	93	4 6	4 5	2 5	5 0												

OXEN

Buffaloes of Bahraich

Breed of buffaloes.	<p>BUFFALOES IN THE DISTRICTS OF BAHRACH AND KHERI, OUDH.</p> <p>The breed of buffaloes commonly found in the above districts is the indigenous which is called the <i>desi</i>. In the towns buffaloes are kept by <i>Ghosis</i>, <i>Ahirs</i> and <i>Gujars</i> for milking purposes and in villages for producing <i>ghee</i>. The breed is, however, remarkable neither for milking qualities nor for size or elegance of appearance. Buffaloes of the Panjab breeds locally called <i>pachhain</i>, which have curled horns, and specimens of crosses between the <i>pachhain</i> and <i>desi</i> breeds are sometimes seen with big landholders or well-to-do <i>Ghosis</i>, but their number is limited. They are considered more valuable than the <i>desi</i> buffaloes. The she-buffaloes have usually a mild temper and the males are notorious for slow movement on which account they are not considered suitable for cart or plough work. Buffaloes graze usually with the large herds of cows so common in both the districts. Some buffaloes are sent for grazing to pastures in the jungles of the districts, others to pastures in Nepal where they remain from October to June. They are brought back to their homes, in the rainy season, when there is no scarcity of natural pasturage.</p>
Buffalo milk.	<p>Milk.</p> <p>The <i>desi</i> buffaloes yield up to 3 seers of milk a day (excluding the quantity taken by the calf), while the <i>pachhain</i> gives about 9 or 10 seers when newly imported from the Panjab, but the effects of a foreign climate are said to reduce the yield in course of time to about 6 seers only. The <i>pachhain</i> buffaloes are very liable to a disease called <i>Talai</i> which will be described further on, and they frequently die a premature death. According to <i>Ghosis</i>' statements the most prominent features of a good milker are—</p> <ol style="list-style-type: none"> (a) Hind quarters heavier than the fore quarters. (b) Skin thin. (c) Hair fine. (d) Abdomen and udder large.
Price of buffaloes.	<p>Prices.</p> <p>The price of a she-buffalo varies from Rs.1 when 1 year old to Rs.30 when full grown. Rupees 6 per seer of milk is supposed to be a fair price for a <i>desi</i> she-buffalo with calf. The male buffalo when full grown fetches Rs.12, and, if particularly strong and handsome, is considered worth Rs.18 or Rs.20.</p>
Feeding of buffaloes.	<p>Feeding of milking buffaloes.</p> <p>In the rainy season they graze on grass and at the time of milking in the morning and evening they get altogether about 4 seers of dry food consisting of wheat bran and oil-cakes, or gram, barley and wheat. In the cold weather besides grazing they are allowed about 3 seers of oil-cake mixed with about 10 seers of <i>bhusa</i> in the form of <i>sani</i>. If possible about 1 seer of <i>gur</i> is allowed daily in addition to the above.</p> <p>In the hot weather they are given green weeds chopped finely and mixed with the <i>sani</i>. Dry buffaloes live only on grazing.</p>
Determination of age.	<p>Determination of age.</p> <p>Male calves shed their first pair of temporary teeth when 2 years of age and get all their permanent teeth when 5 years old, one pair being</p>


and Kheri. (S. M. Hadi).

AND
BUFFALOES.

shed and replaced in course of each year. The age of females is generally told by the number of knots on the horn, each ring being said to denote one year. Buffaloes generally become in calf at the age of 3 years. Some calve every year and are called *kurahia*, but the majority of them calve once in two years and are called *dosala*. Flowers and leaves of *til* (*Sesamum indicum*), about 2 oz. in weight, are given to buffaloes should they not come into heat in the ordinary course.

The *anthers* of *Kiora* flower (*Pandanus odoratisimus*) given internally are also said to produce the same effect.

Bulls.

Young calves of good constitution are selected to be brought up as breeding bulls. They are branded with hot iron and let loose. Two kinds of marks are used for branding, one which is very common is called *bhawania* and is of this shape  and the other which is called *murkaha dogh* is of a different shape as shown on the margin. It is used only for branding exceedingly furious calves to indicate their wickedness in order that people might take care of themselves, when coming across buffalo bulls bearing such a mark. One bull is considered enough for a herd of 100 buffaloes.



Male buffaloes are put to work at the age of 3 years and continue to work till 12. After that age they lose strength. They are put to plough and cart labour but not freely, being used chiefly for carrying loads on their backs.

Diseases.

The diseases to which buffaloes are liable are enumerated in the following table :—

Nature of disease.	Particulars and symptoms.	Treatment followed by breeders.
<i>Faldi</i>	The disease is supposed to be caused by unwholesome grazing in <i>Fald</i> (ponds), hence the name; some kind of fluke-worms locally called <i>Jonk</i> (leeches) are said to crop up in the stomach and the animal rapidly loses condition. Diarrhea sets in and the excreta give off an offensive smell.	Purgative is given according to the following receipt :— Fresh turmeric ½ lb. Old treacle 1 lb. Common salt ½ lb. Juice of the root of <i>Sarpal</i> grass 2½ lb. Garlic ½ lb. This mixture is divided into 2 doses and given daily for 3 days. Only dry <i>bhusa</i> is given as food and no water allowed. Purgings is brought on and the worms are expelled with the dung.
<i>Tharia</i>	Inflation of abdomen, stoppage of rumination, occurrence of death within 5 or 6 hours.	Black pepper ½ <i>chhatank</i> mixed with ½ lb of <i>ghee</i> given internally is said to do good. Boiled flesh of 2 <i>kalas</i> made into a ball with gram flour is considered a specific. <i>Ghois</i> kill bats and keep them buried underground to be used when required.
<i>Khumsa</i> or <i>Khang</i> <i>Bari Mandgi</i>	Appearance of worms in the feet. High fever, heaving, bloody diarrhea.	Animals are tied in a pond or on miry ground. Fat of tiger is burnt near the animal or about a tola of tiger's flesh if available, is given with uncertain success. These treatments are evidently based upon superstitious beliefs of the <i>Ghois</i> .

Buffalo bulls.

Diseases of buffaloes.

OXEN **Buffaloes of Bahraich and Kheri.** **AND**
BUFFALOES.

Measurements, etc., of the Buffaloes of the Desi breed of Kheri, Oudh.

Sex.	Age.	Height at shoulder.		Height at croup.		Height at elbow.		Length.		Length of horn.		Length of ear.		Length of face.		Breadth of forehead.		Girth at chest.		Girth at abdomen.		Girth of forearm.		Girth of shank.		Length of neck.		Length of shank.		Colour of skin.		Colour of hair.		Remarks.
		Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.			
Female	7	3	10	3	04	2	0	5	10	1	84	0	8	1	8	0	10	5	11	6	9	..	0	84	1	04	Dark.		
Male	12	4	1	3	11	3	2	5	8	1	7	0	9	1	9	1	0	5	6	6	10	..	0	84	1	7	Do.			

All communications regarding THE AGRICULTURAL LEDGER should be addressed to the Editor, Dr. George Watt, Reporter on Economic Products to the Government of India, Calcutta.

The objects of this publication (as already stated) are to gradually develop and perfect our knowledge of Indian Agricultural and Economic questions. Contributions or corrections and additions will therefore be most welcome.

In order to preserve a necessary relation to the various Departments of Government, contributions will be classified and numbered under certain series. Thus, for example, papers on Veterinary subjects will be registered under the Veterinary Series. Those of more direct agricultural or industrial interest will be grouped according as the products dealt with belong to the Vegetable or Animal Kingdom. In a like manner, contributions on Mineral and Metallic subjects will be registered under the Mineral Series.

This sheet and the title-page may be removed when the subject-matter is filed in its proper place, according to the letter and number shown at the bottom of each page.